



US 20050123240A1

(19) United States

(12) Patent Application Publication

Seto et al.

(10) Pub. No.: US 2005/0123240 A1

(43) Pub. Date: Jun. 9, 2005

(54) OPTICAL COLLIMATOR-USE LENS
COMPONENT, OPTICAL COLLIMATOR,
AND METHOD OF ASSEMBLING THESE

(52) U.S. CL. 385/35; 385/33

(76) Inventors: Tadashi Seto, Shiga (JP); Masaaki
Kadomi, Otsu-shi (JP); Hirokazu
Tanaka, Otsu-shi (JP); Hirokazu
Takeuchi, Otsu-shi (JP); Shintaro Ito,
Otsu-shi (JP)

(57) ABSTRACT

Correspondence Address:

J C PATENTS, INC.
4 VENTURE, SUITE 250
IRVINE, CA 92618 (US)

Disclosed is an optical collimator-use lens component including: a thin tube; a partially spherical lens that has been fixed in an inner hole of the thin tube so that an insertion portion having a predetermined length is left, is made of glass whose refractive index is approximately uniform, and has translucent spherical surfaces, whose centers of curvature are approximately the same, at both ends of a cylindrical portion of the partially spherical lens; and an adhesive that bonds the partially spherical lens to the thin tube. An axial deviation amount between a center axis of the thin tube and an optical axis of the partially spherical lens is $5 \mu\text{m}$ or less. When a capillary tube, in whose inner hole an optical fiber has been fixed and whose axial deviation amount between an outer peripheral surface of the capillary tube and a core center of an end surface of the optical fiber is $1.5 \mu\text{m}$ or less, is inserted into the insertion portion of the thin tube and the end surface of the optical fiber is fixed at a position at which a distance of the end surface to a focal point position of the partially spherical lens becomes $\pm 40 \mu\text{m}$ or less, emission light has an emission light bend of 0.2° or less with respect to the center axis of the thin tube.

(21) Appl. No.: 10/503,739

(22) PCT Filed: Feb. 21, 2003

(86) PCT No.: PCT/JP03/01912

(30) Foreign Application Priority Data

Feb. 22, 2002 (JP) 2002-47182
Feb. 22, 2002 (JP) 2002-47187

Publication Classification

(51) Int. Cl. 7 G02B 6/32

